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ABSTRACT

The purpose of this study was to determine the academic achievement of 1972 and 1974 Associate of Arts graduates from San Jose City College. A sample of 300 was selected from the total population of 1,871. The analysis of data focused on 11 independent variables: ethnic background, sex, marital status, high school graduation, day or evening status, transfer or vocational major, age, Davis Reading Test scores, Cooperative Mathematics Test scores, number of years to graduate, and location of high school attended. The criterion variable for academic success was grade point average (GPA). Variables found to be significantly related to GPA were sex, transfer or vocational-technical major, age, number of years to graduate, and location of high school attended. Thus, the student who is most likely to succeed was found to be female, a high school graduate, approximately 27 years old, a transfer liberal arts major, a graduate from a high school in a state other than California, and spending approximately four years to graduate from the community college. A modified predictor model was not obtainable due to a small correlation coefficient of predictability. A bibliography and and data tables are included. (Author/MB)

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ACADEMIC SUCCESS OF SAN JOSE CITY COLLEGE STUDENTS USING SELECTED STUDENT CHARACTERISTICS

by

Alexander Reyes Ed.D.

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ABSTRACT

The purpose of this study was to determine academic success using selected student characteristics from 1972 and 1974 Associate of Arts graduates, San Jose City College, San Jose, California. The analysis was restricted to eleven independent variables. The criterion variable for academic success was the grade point average. The data were acquired from the Office of Admissions. Multiple regression analysis and analysis of variance were computed using the 360/65 computer at Brigham Young University. Variables found to be significantly related to grade point average were: sex type, transfer and vocational-technical majors, age, number of years to graduate, and location of high school attended. Variables found not significantly related to grade point average were: ethnic background, marital status, high school graduate, day or evening status, Davis Reading scores and Cooperative Mathematics scores. A modified predictor model was not obtainable due to a small correlation coefficient of predictability. The findings of this study can be used as helping tools by student services personnel when they provide advisement to students.

1. THE PROBLEM

A. Background and Significance

The community college or junior college in the United States is currently the most rapidly increasing form of higher education institution. Reynolds reported that since the 1940's the number of new community college institutions exceeded the number of all other kinds of new institutions.[1]

Reynolds explained this rapid growth in terms of the community college's close proximity to the homes of potential students and their non-selection admission policies. These two factors have made community colleges the most significant of all higher education institutions in extending educational opportunities. The net result is that the community colleges contain a wide range of students, particularly those who are not able to utilize other forms of post-high school education.[2]

Medsker discussed the diversity of community college student characteristics in terms of socioeconomic status, aptitude, sex, marital status, and some other factors that have several important implications. He listed several important conclusions as a result of his study:

1. Community colleges should acquire a body of facts about their own students, which would serve as guidelines for educational policies and procedures.
2. A wide range of programs should be offered in the community colleges to provide opportunities for the wide variety of student abilities.
3. Data on students should be updated constantly; especially those data related to the motivations of students of varying abilities. This concern is particularly relevant to students who come from lower socioeconomic groups.
4. Counseling and guidance services should be offered if students with different backgrounds are to be assisted in determining occupational and educational goals most appropriate to each of them.[3]

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[1] James W. Reynolds, The Junior College (New York: The Center for Applied Research in Education, Inc., 1965), p. vii

[2] Reynolds, p. 17

[3] Leland L. Medsker, The Junior College: Progress and Prospect (New York: McGraw-Hill Book Co., 1960), P. 70.

San Jose City College, like the one hundred other California community colleges, must admit any high school graduate and any other person over eighteen years of age who is capable of profiting from the instruction offered.[4] This means that San Jose City College as well as all other California community colleges is not in a position to be selective. In effect, the college is expected to admit all applicants, without regard to ability, type of curriculum completed in high school, or any other aspect of background. Thus, San Jose City College is an open access or open door community college.

Unlike state colleges or universities, which require transcripts and achievement test results for admittance, community colleges frequently require less. For example, San Jose City College requires that a new enrolling student produce a high school transcript and the results of a placement test given by the college. The difficulty in providing good counseling and guidance to the new student arises when insufficient background information is available. Students who provide insufficient data are typically students returning to the educational scene after an absence of ten years or more, or students who did not graduate from high school.

Because of the open door policy, the institution acquires minimal information on each student's ability, prior school experience, and potential of success. Consequently, some device which can predict success becomes extremely important when evaluating successful counseling and guidance, supportive services, and cost factors attached to each student that the institution enrolls.[5]

One of the issues facing higher education in general and the community colleges in particular is the high attrition rate as it affects the amount of available revenue for operation of the institution. Revenue available to the institutions reduces as students withdraw from the community college, yet the comprehensive public community college depends heavily on state appropriations in order to meet operating expenses. San Jose City College is not unique in its rate of attrition and has thus felt the economic impact of this form of dropoutism.[6]

No study aimed at providing a predictive device for student success has ever been undertaken with respect to San Jose City College. Thus, the significance of this study is twofold:

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[4] San Jose City College Catalog, 1974-75, p. 16

[5] Charles W. Sanford, "State Plans for Higher Education and Their Influences on Admissions," College Admissions Policies for the 1970's (Michigan: Colloquim on College Admissions Policies, 1967), p. 47.

[6] Richard L. Alfred, 1971-1972 Student Attrition: Antecedent and Consequent Factors, U.S. Educational Resources Information Center, ERIC Document ED 970,435, October, 1972

1. To provide San Jose City College with a modified predictive model of academic success using student characteristics.

2. To indicate success or lack of success so that the resources of the college can be more completely and appropriately used to improve the student's potential for success.

B. Statement of Purpose

The purpose of this study was to determine academic success using selected characteristics of 1972 and 1974 Associate of Arts graduates of San Jose City College, San Jose, California. The analysis was restricted to an investigation of eleven independent variables. The criterion variable for academic success was the grade point average of those graduates. The independent variables were: (1) ethnic background; (2) sex; (3) marital status; (4) high school graduate; (5) day or evening status; (6) major; (7) age: (8) Davis Reading test scores; (9) Cooperative Mathematics test scores; (10) number of years to graduate; and (11) location of high school attended.

C. Delimitations

This study was limited as follows:

1. Only San Jose City College students who graduated during the academic years 1972 and 1974 were included. An examination of characteristics of other institutions in the San Francisco bay area and elsewhere throughout the United States did not reveal characteristics sufficiently common to San Jose to permit inclusion. Further, graduates for the year 1973 were not included in the study inasmuch as the print-out from the San Jose City College computer center containing a listing of 1973 graduates was not available following several attempts at retrieval.

2. In selecting the sample no distinction was made regarding whether the graduates were day or evening students.

3. In selecting the sample no distinction was made regarding whether the graduates were full-time or part-time students.

4. Academic experience acquired prior to a student's transferring from another high education institution was not considered.

5. The student variables of sex types, high school graduate classification, and marital status in combination with each other were included in the interaction analysis. All other variables were not included because of their distinct characteristics as well as the voids that resulted in cell occupancy.

6. The following measures of success were not elements of this study:

(a) the transference of graduates to other institutions of higher education; (b) the academic success of graduates in further higher education; (c) employment success of graduates after completion of their baccalaureate degrees; and (d) possession by graduates of favorable personal traits.

7. The results of this study are not directly usable as a predictor model. No regression analysis was developed.

D. Hypotheses

It was hypothesized that no significant difference would be found in grade point average: (1) among students of selected ethnic backgrounds; (2) between sexes; (3) among students of various marital statuses; (4) between high school graduates and non-graduates; (5) between day and evening students; (6) among students of various majors; and (7) when students were grouped according to (a) age, (b) Davis Reading test scores, (c) Cooperative Mathematics test scores, (d) number of years to graduate, and (e) location of high school attended.

II. METHODOLOGY

A. Research Design

All qualitative independent variable data in relationship with the grade point average were subjected to multiple regression analysis and analysis of variance. The exception was with the variable termed major. A nested design for major was developed whereby the thirty-eight sub-types of majors within each of the two principal majors were analyzed. The qualitative variables were ethnic background, sex, marital status, high school graduate, day or evening status and major.

All quantitative independent variable data in relationship with the grade point average were subjected to the stepwise multiple regression technique. The exception was with the location of high school attended variable. In this case an analysis of variance was used. All of the variables in this situation were classified quantitative inasmuch as they evidenced continuous data. The quantitative variables were: age, Davis Reading test scores, Cooperative Mathematics test scores, number of years to graduate, and location of high school attended.

The use of the multiple regression analysis was intended to permit the application of a modified predictor model even though a formal regression equation was not developed. Analysis of variance was used to compare grade point average with the independent variables.

B. Sampling Procedure

A total of 1,871 students, the total who graduated with an Associate of Arts degree from San Jose City College during the years 1972 and 1974, constituted the

population. The three hundred students actually included in the sample (150 graduates from the graduation list for each year) were randomly selected.

Data for the eleven selected student characteristics were secured from the student roster of the Director of Records and Admissions, which is processed by the campus computer services center at the conlusion of each semester. The data were key punched on IBM key punch cards and processed using the Modified Abbreviated Doolittle (MAD) computer program on the Model 360/65 computer at the Research and Testing Center, Brigham Young University.

III. SUMMARY OF THE FINDINGS

A. Significant Relationships

1. The qualitative variables of sex type of graduates in comparison with their grade point averages were found to be significant (See Table 2). The mean grade point average of females was higher than the grade point average of males.

2. A statistical interaction of sex type, high school graduate classification, and marital status was conducted. (See Table 5, 6 and figure 1) Married students achieved significantly higher grade point averages if they were high school graduates, but significantly lower grade point averages if they were non-high school graduates.

3. A significant finding did occur in the interaction between sex type, high school graduate classification and marital status. (See Figure 2) The interaction of the female sex category along with the high school graduate classification and marital status, reveals that both marital status and high school graduation status were found to have significant statistical effect on female students. The impact of grade point average is greater for married females than for single females.

4. A significant finding was found in the qualitative variable of principal majors----vocational technical and general education transfer (See Table 9). General transfer graduate students would outnumber the vocational-technical students and would achieve a slightly higher but not significantly greater grade point average.

5. The quantitative variable found to be significantly related to grade point average of graduates was age (See Table 12). The mean age of successful graduates was twenty-seven years.

6. The second quantitative variable found to be significantly related to grade point averages of graduates was the number of years to graduate (See Table 12). The mean number of years taken by the students to graduate was four years.

7. The only other quantitative variable found to be significantly related

to grade point averages of graduates was location of high schools. The students who graduated from high schools outside the State of California (See Table 13) were found to have achieved a higher grade point average than the students graduating from the district's feeder high schools.

B. Non-Significant Variables

1. No significant differences in grade point averages of San Jose City College graduates were found when qualitative characteristics of ethnic background (See Table 1), marital status (See Table 3), high school graduates (See Table 4), day or evening status (See Table 8), and thirty-eight specific majors were considered (See Tables 10 and 11).

2. In regard to the quantitative variables of the Davis Reading Placement test scores and Cooperative Mathematics placement test scores (See Table 12) in comparison with grade point averages of graduates, no significant relationships were found.

IV. CONCLUSIONS

The following conclusions are based on the findings of the study:

1. Considering the significant relationships between a high grade point average and characteristics of graduates, the student who is most likely to succeed will be the female, high school graduate, approximately twenty-seven years old, a transfer liberal arts major, graduated from a high school from a state other than California, and will spend approximately four years to graduate from San Jose City College.

2. Students of varying ethnic backgrounds, differing marital statuses, high school graduate or not, day or evening status, and regardless of English and Mathematics placement test scores, have succeeded by graduating from San Jose City College.

3. Minority students as a group were not more likely to graduate with a low grade point average than non-minority students. The attainment or non-attainment of academic success cannot be predicted in terms of ethnic groups.

4. Regardless of whether the San Jose City College graduate was high school graduate or non-graduate, neither type of student will show a significant difference in grade point average from the other while attending San Jose City College.

5. The expectation of providing a modified predictive model to determine academic success of San Jose City College students was not achieved. The R^2's,

or co-efficients of correlation for all the variables, were not large enough for predictability purposes.

6. Even though ethnic background, marital status, high school graduate classification, day or evening status, Davis Reading placement test scores, and Cooperative Mathematics placement scores do not appear to be usable as predictors of academic success, nor do they inhibit or preclude such success.

7. The results of the regression analysis on English and Mathematics placement scores indicate no predictability as far as total grade point average is concerned. These measuring instruments are utilized by San Jose City College for placement purposes. It had been thought that using these instruments would permit a determination of academic success. However, the results of this study indicate that academic success is not based on a particular English and Mathematics course being taken initially.

V. RECOMMENDATIONS

Based on the review of literature, the findings, and the conclusions reported above, it is recommended that:

1. In the counseling role, student services personnel of San Jose City College utilize the findings of this study even though a formal predictive model of success was not developed. Significant relationships between grade point averages and specific student characterisitcs were found. These results can be used as helping tools by all student personnel when they provide counseling and advisement to students.

2. All segments of the college, trustees, administrators, faculty, and classified staff use the results of this study while reviewing institutional goals and priorities as they relate to the needs of the students who attend the college.

3. All personnel at San Jose City College involved in assisting students avoid the presumption that members of minority groups can not successfully compete academically with non-minority groups.

4. The college recognize that successful graduates generally are older and are taking more than two years to graduate. This indicates that these students are attending the evening division on a part time basis. Further, these students should be provided the same proportional supportive and ancillary services as offered to the day divisional student.

5. The college consider discontinuing the use of the Davis English and Cooperative Mathematics tests for placement purposes, inasmuch as the results of

this study invalidated their use in determining academic success.

6. San Jose City College conduct additional research using the findings of this study as base-line data for further investigation and refinement of a predictive instrument including the establishment of a regression equation.

7. In addition to considerations of research related to a predictive model, answers to the following questions be sought:

a. To what extent was the liberal arts major beneficial to graduates regarding their careers or their saleable skills after leaving San Jose City College?

b. Why do non-high school graduates successfully complete a course of study more frequently and to a higher degree of success than do feeder high school graduates?

c. Why are feeder high school students not graduating from college in larger numbers than at present or in as high a proportion as non-feeder high school students?

Table 1

Analysis of Variance, Cell Size, and Means of 1972 and 1974 San Jose City College Associate of Arts Graduates Comparing Ethnic Background with Grade Point Average

Analysis of Variance				
Source	df	MS	F	P
Ethnic Background	7	.20822	1.0474	NS
Error	292	.19878		

Cell Size and Means			
Source	Level	Size	Mean
Ethnic Background			
B_1	American Indian	3	2.72
B_2	American Negro	6	2.39
B_3	Filipino American	2	2.78
B_4	Oriental American	7	2.81
B_5	Mexican American	17	2.59
B_6	Spanish American	7	2.81
B_7	Foreign Student	3	2.56
B_8	Other	255	2.78

Table 2

Analysis of Variance, Cell Size, and Means of 1972 and 1974 San Jose City College Associate of Arts Graduates Comparing Sex Type With Grade Point Average

Analysis of Variance				
Source	df	MS	F	P
Sex	1	1.9714	10.212	.005
Error	298	.19305		

Cell Size and Means			
Source	Level	N	Mean
Sex Type			
S_1	Male	179	2.68
S_2	Female	121	2.85

Table 3

Analysis of Variance, Cell Size, and Means of 1972 and 1974 San Jose City College Associates of Arts Graduates Comparing Marital Status With Grade Point Average

Analysis of Variance

Source	df	MS	F	P
Marital Status	1	.0324	.1624	NS
Error	298	.19956		

Cell Size and Means

Source	Level	N	Mean
Marital Status			
M_1	Single	202	3.09
M_2	Married	98	2.87

Table 4

Analysis of Variance, Cell Size, and Means of 1972 and 1974 San Jose City College Associate of Arts Graduates Comparing High School Graduate Classification with Grade Point Average

Analysis of Variance				
Source	df	MS	F	P
High School Graduate	1	.16102	.8086	NS
Error	298	.19913		

Cell Size and Means			
Source	Level	N	Mean
High School Graduate			
G_1	Yes	126	2.85
G_2	No	174	2.76

Table 5

Analysis of Variance of 1972 and 1974 San Jose City College Associate of Arts Graduates Comparing Interaction of Sex Type, High School Graduate Classification and Marital Status, with the Grade Point Average

Analysis of Variance

Source	df	MS	F	P
Sex (S)	1	1.96	10.32	.001
Graduate (G)	1	.18	.95	NS
Marital (M)	1	.02	.11	NS
SG	1	.00	.00	NS
SM	1	.06	.32	NS
GM	1	.90	4.74	.05
SGM	1	.80	4.21	.05
Error	292	.19		

Table 6

Cell Size and Means Associated with the Analysis of Variance of 1972 and 1974 San Jose City College Associate of Arts Graduates Comparing Interaction of High School Graduate Classification and Marital Status with the Grade Point Average

Source	Level		Estimated Means
High School Graduate and Marital Status			
GM_1	Graduate and Single	69	2.68
GM_2	Graduate and Married	57	2.85
GM_3	Non-Graduate and Single	133	2.73
GM_4	Non-Graduate and Married	41	2.61

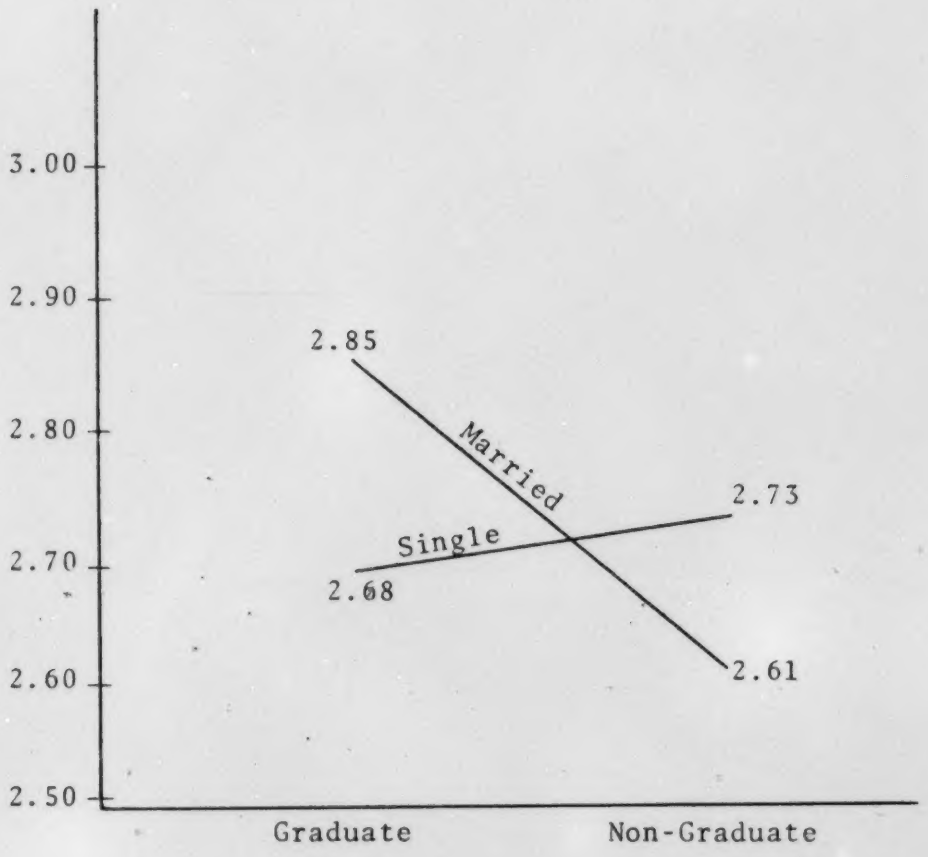

Figure 1

Interaction Among Marital Status and High School Graduate Classification for College Graduates on Their College Grade Point Average

Table 7

Cell Size and Means Associated with the Analysis of Variance of 1972 and 1974 San Jose City College Associate of Arts Graduates Comparing Interaction of Sex Type, High School Graduate Classification and Marital Status, with the Grade Point Average

Source	Level	N	Estimated Means
Sex Type, High School Graduate Classification, and Marital Status			
SGM_1	Male, Graduate, Single	37	2.66
SGM_2	Male, Graduate, Married	37	2.67
SGM_3	Male, Non-Graduate, Single	82	2.62
SGM_4	Male, Non-Graduate, Married	23	2.59
SGM_5	Female, Graduate, Single	32	2.70
SGM_6	Female, Graduate, Married	20	3.03
SGM_7	Female, Non-Graduate, Single	51	2.83
SGM_8	Female, Non-Graduate, Married	18	2.64

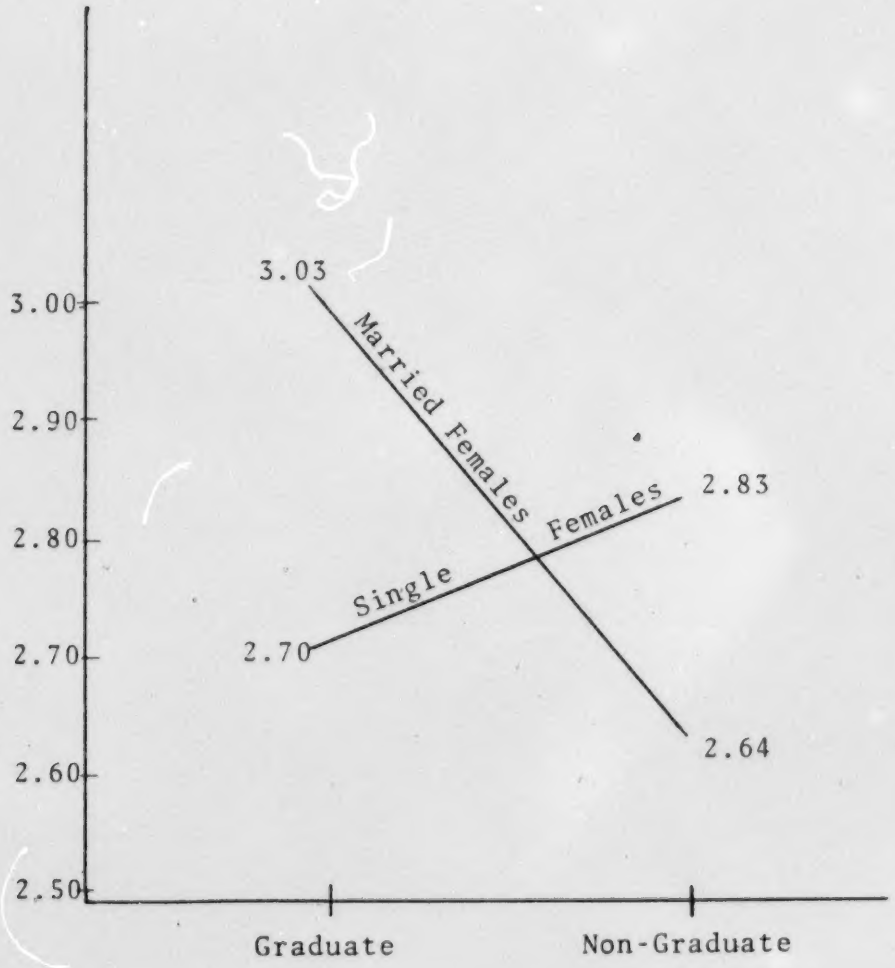

Figure 2

Interaction Among Marital Status and High School Graduate Classification for Female College Graduates on Their Grade Point Average

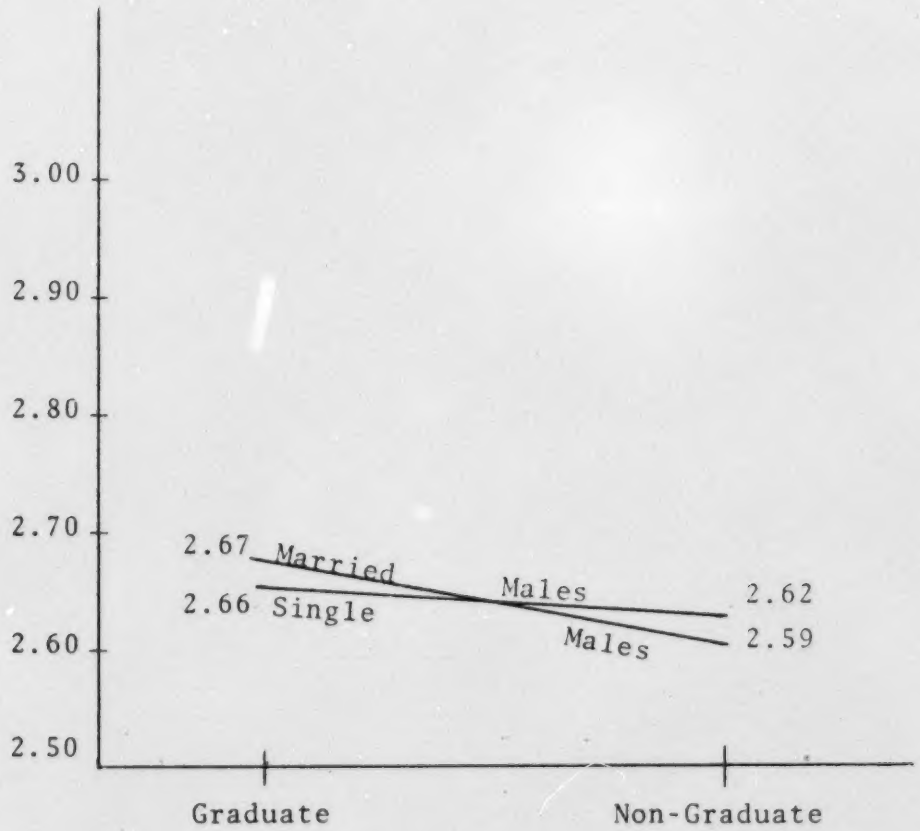

Figure 3

Interaction Among Marital Status and High School Graduate Classification for Male College Graduates on Their Grade Point Average

Table 8

Analysis of Variance, Cell Size, and Means of 1972 and 1974 San Jose City College Associate of Arts Graduates Comparing Day or Evening Status With Grade Point Average

Analysis of Variance				
Source	df	MS	F	P
Day or Evening Classification	1	.08855	.04290	NS
Error	298	.19937		

Cell Size and Means			
Source	Level	N	Mean
Day or Evening Classification			
N_1	Day	142	2.81
N_2	Evening	158	2.59

Table 9

Analysis of Variance, Cell Size, and Means of 1972 and 1974 San Jose City College Associate of Arts Graduates Comparing Principal Majors with Grade Point Average

Analysis of Variance

Source	df	MS	F	P
Vocational-Technical and General Transfer Majors	1	.32760	5.5431	.05
Error	262	.08151		

Cell Size and Means

Source	Level	N	Mean
Majors			
M_1	Vocational-Technical Major	121	2.74
M_2	General Transfer Major	179	2.76

Table 10

Analysis of Variance of 1972 and 1974 San Jose City College Associate of Arts Graduates Comparing the Thirty-Eight Specific Types of Major With the Grade Point Average

Source	df	MS	F	P
Thirty-Eight Specific Majors	38	.0591039	.7374	NS
Error	262	.080151		

Table 11

Cell Size and Adjusted Means Associated with the Analysis of Variance of 1972 and 1974 San Jose City College Associate of Arts Graduates Comparing the Thirty-Eight Specific Majors with the Grade Point Average

Source	Level	N	Mean
General Transfer Majors			
1	Art	9	2.91
2	Behavioral Science	4	2.36
3	Biological SCience	6	2.74
4	Business Administration	4	2.32
5	Criminal Justice Admin.	7	2.71
6	English	7	3.02
7	Foreign Language	2	2.68
8	General	13	2.77
9	Home Economics	1	2.82
10	Industrial Arts	3	2.64
11	Mathematics	12	3.01
12	Music	3	2.88
13	P.E./Recreation	5	2.74
14	Social Science	81	2.78
15	Social Service	1	3.23
16	Speech/Drama	4	2.82
17	Psychology	13	2.83
18	Physical Science	4	2.47
Vocational-Technical Majors			
1	Accounting	2	2.36
2	Auto Technology	1	3.53
3	Banking and Finance	1	2.31
4	Business Data Processing	7	2.93
5	Cosmotology	1	2.20
6	Dental Assisting	4	2.83
7	Drafting	3	2.72
8	Electronics Technology	9	2.61
9	Engineering Technology	3	2.50
10	Fire Science	12	2.75
11	Law Enforcement	10	2.45
12	Library Technology	1	3.34
13	Marketing	11	2.68
14	Nursery School Teaching	8	2.96
15	Nursing	24	2.73
16	Office Operations	5	2.47
17	Real Estate	1	2.57
18	Secretarial Science	2	3.20
19	Social Science/General	15	2.56
20	Welding	1	3.14

Table 12

Regression Analysis, Means, Variance and Standard Deviation of 1972 and 1974 San Jose City College Associate of Arts Graduates for Prediction of Success Comparing Age, Mathematics Test Scores, English Test Scores, and Number of Years to Acquire A.A. Degree With Grade Point Average

Regression Analysis

Source	Mean	SS	B Value	Std Error	T	P
Age	26.88	3.054	.0156	.0038	4.061	.001
Math	29.91	.004	-.0004	.0033	-.148	NS
English	42.88	.016	-.0005	.0018	-.293	NS
Number of Years to Graduate	4.08	3.577	-.0596	.0135	-4.395	.001

R^2 = .085

Means, Variance and Standard Deviation

Source	Means	Variance	Standard Deviation
Age	26.88	53.3300	7.3027
Math	29.91	99.7383	9.9869
English	42.88	333.7782	18.2696
Number of Years	4.09	4.2249	2.0555
Grade Point Average	2.75	.1990	.4461

Table 13

Analysis of Variance, Cell Size, and Means of 1972 and 1974 San Jose City College Associate of Arts Graduates Comparing Origin of High School District with Grade Point Average

Analysis of Variance				
Source	df	MS	F	P
High School District	6	.4642	2.3989	.05
Error	293	.1935		

Cell Size and Mean			
Source	Level	N	Mean
High School District			
H_1	Eastside Union High School District	18	2.65
H_2	San Jose Unified School District	31	2.63
H_3	Milpitas Unified School District	3	2.61
H_4	Other High School Districts in Santa Clara County	16	2.78
H_5	High School District in California	23	2.77
H_6	High School District Out of California	36	2.94
H_7	No High School District	173	2.73

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